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ACTION PLAN

*Alberta Government Action Plan
on Climate Change
1995-96 Progress Report*



Alberta
Government of Alberta



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EXECUTIVE SUMMARY

The Government of Alberta submitted an Action Plan for Canada's Climate Change Voluntary Challenge and Registry Program in October 1995. Alberta was the first government in Canada to register its plan with the national organization, an indication of its commitment to the program. The Alberta government is taking a progressive approach to the voluntary challenge, building on the initial commitment in the action plan. As outlined in our action plan submission, the focus of the first year was to establish an organization to deliver on the plan, develop a baseline, choose indicators, set targets, and take cost-effective actions building on existing programs. These goals have been accomplished.

The second and third years of the plan will focus on building on the first-year actions, implementing further greenhouse gas emissions reducing actions, monitoring and reporting the results, and encouraging others to take similar actions.

Greenhouse gas reducing actions were taken in government-owned buildings through energy performance contracts, capital improvements and ongoing maintenance and operation. An energy consumption recording system was established for all buildings and will track future reductions. Waste management programs were piloted in two large office buildings and 14 other representative buildings were audited. A "Greenhouse Gas Emission Reduction Guide" was prepared as a tool for delivering actions by government employees. An Implementation Team, with representatives from all departments, was established and a workplan developed. A baseline of greenhouse gas emissions for internal operations was established for 1990 to 2000. The total greenhouse gas emissions in 1990 were 526 kilotonnes of carbon dioxide (CO₂) equivalent and are projected to be 507 kilotonnes of CO₂ equivalent in 2000 with no further actions.

The Alberta government has established a target for reducing emissions. Greenhouse gas emissions are to decrease from 1990 levels by 14.1 per cent of CO₂ equivalent by 2000. The result will be a reduction in emissions of 74 kilotonnes of CO₂ equivalent from 526 to 452 kilotonnes of CO₂ equivalent. Most of these emission reductions will be due to initiatives taken under the Climate Change Action Plan. Twenty five per cent of the reductions result from the following factors: privatization of government services; increased efficiency in the delivery of services; and continuing energy efficiency efforts. Privatization of government services may result in a transfer of emissions from the public to the private sector.

The overall performance measure for the Action Plan is per cent reduction of CO₂ equivalent. The per cent reduction of CO₂ equivalent will also be used as a performance measure for each of the three main emission sources. In addition, a second performance measure for each emission source was chosen. These performance measures are: energy consumed per square meter per year for energy use in buildings; waste disposal per employee per year for waste; and total amount spent on travel per year for transportation.

1. BACKGROUND ON ACTION PLAN

The Action Plan submitted by the Government of Alberta in October 1995 focussed on measures that will directly result in reductions of greenhouse gas emissions from Alberta government operations over a three-year period.

Greenhouse gas emissions related to Alberta government operations are mostly carbon dioxide. Emissions of methane, nitrous oxide and other greenhouse gases are less significant. The three major sources of carbon dioxide, in order of significance—and their potential for reducing emissions—are

1. energy used in buildings, mostly natural gas and electricity,
2. waste,
3. operation of vehicles in the government's transportation fleet.

In 1990, emissions of carbon dioxide from human activity in Alberta equalled 126,470 kilotonnes. Although the Alberta government's contribution from internal operations is small, 526 kilotonnes or 0.42 per cent, in relation to the province as a whole, it can set an example for other organizations. A prime focus of this Action Plan is to show leadership by taking cost-effective actions to reduce the Alberta government's own greenhouse gas emissions.

The Alberta government's Action Plan has seven objectives:

- implement actions that reduce greenhouse gas emissions related to Alberta government operations
- demonstrate the advantages of a voluntary approach
- take effective actions that save money
- profit from doing business in new ways
- show how others can take cost-effective action to reduce emissions
- share what we learn
- measure and report on cost-effective quantitative actions.

2. ORGANIZATIONAL DEVELOPMENT

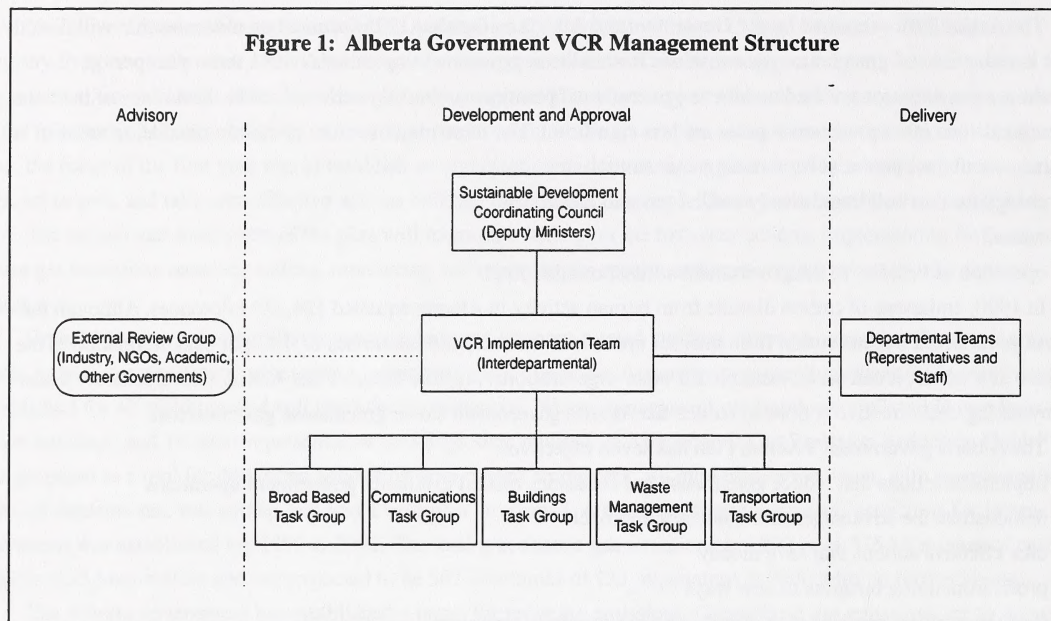
The Action Plan required an organizing mechanism to plan, develop, deliver, advise and assess greenhouse gas emission reducing actions (see Figure 1). An Implementation Team was established in December 1995 with representation from all government departments. This team reports to a deputy minister level committee. The team provides overall coordination and direction for the Action Plan; ensuring integration of plans, actions and communication efforts.

Each department representative on the implementation team coordinates his or her department's involvement in the program by keeping senior executives informed, developing departmental teams, and encouraging staff to take specific actions. They also provided access to departmental perspectives and expertise, communication mechanisms, and approval processes. Some representatives established teams of interested staff to facilitate their department's involvement in the program.

Five task groups were established to develop sector-specific plans and direct actions in these areas. These groups are: broad base, buildings, waste management, transportation, and communications. The buildings, waste management, and transportation groups developed actions to reduce emissions from the three main emission sources. The broad base group coordinates development of the baseline, performance measures, targets, workplan and progress report. The communications group coordinates all communications activities and developed the "Greenhouse Gas Emission Reduction Guide." Each group will develop further actions by assessing the results from initial actions and investigating other potential actions.

An external review group, which includes representatives from industry, environmental organizations, and other governments, was established to review and provide comments on workplans and annual progress reports to the national Voluntary Challenge & Registry. This group kindly reviewed a draft of the 1995–96 workplan and baseline report.

Figure 1: Alberta Government VCR Management Structure



3. GENERAL APPROACH

The three-year Voluntary Challenge Action Plan was aligned with the progressive three-year business plans prepared by Alberta government departments. This allows departments to incorporate elements that apply to them into their planning cycles.

To ensure the long-term effectiveness and credibility of the program, the Implementation Team compiled information on the actual emissions from Alberta government internal operations. Current Alberta government programs were assessed and potential new programs were considered. All Action Plans submitted to the national Voluntary Challenge and Registry were reviewed to learn from their experience. Using this knowledge and experience, performance measures and targets were established.

Immediate actions were taken building on actions the Alberta government has been doing for many years. Task groups explored new opportunities for reducing emissions from the three large emission sources. Using the baseline data and the experience of Implementation Team members, potential cost-effectiveness actions were identified. A plan of action was developed and presented to a Deputy Minister level committee for approval.

The following actions resulted from this approach:

1. A baseline, performance indicators, and targets were established.
2. Cost-effective actions were taken in government owned or operated buildings using the energy performance contracting approach (energy service companies finance the retrofits and receive payment through energy bill savings) or through quick payback retrofit projects.
3. A resource kit was produced to support implementation of actions by staff in each department.
4. Workplans were developed for each major source of greenhouse gas emissions.

4. BASELINE

A baseline establishes where emissions are occurring, the size of those emissions, and the trends for those emissions. This data is crucial for determining which actions make sense, establishing performance indicators, selecting target reductions, monitoring the effects of actions taken, and assessing results.

4.1 Methodology

A baseline was established for the period from 1990 to 2000. For the 1990 to 1995 period, recorded historical data was used. When historical data was not available, reasonable extrapolations were made. Projections were made for 1996 to 2000 guided by the Alberta government's three-year business plan. The specific method for determining the baseline for each source follows. For converting energy used or waste to CO₂ equivalent figures, greenhouse gas emissions factors were taken from the Voluntary Challenge and Registry Participants Handbook.

4.1.1 Buildings

The department of Public Works Supply and Services (PWSS) has maintained an energy recording system for many years. A new Building Management Information System was recently implemented. Both these systems include data on gas and electric utility bills for all government buildings. PWSS has verified the data in the old recording system back to 1988. The 1996 to year 2000 emissions projections assumed no change from the 1995 data. Despite the current downsizing, no change in energy use was assumed for two reasons; government is consolidating its operations within its own buildings and moving out of leased buildings, and most surplus buildings will require some time to be sold.

4.1.2 Waste

No system is currently in place for tracking waste generation or disposal. Waste audits were conducted on 14 representative government buildings in March 1996. The results from these audits were used to generate waste generation and disposal rates and waste composition per employee. Published studies were used to verify the waste generation rates and material composition ratios. The employee waste disposal rates were then multiplied by the 1996 government employee numbers.

Per capita waste disposal figures for Alberta are available for 1990 to 1994. They show a 18.3 per cent decline over those years. To generate 1990 to 1995 waste disposal rates, a 20 per cent incremental decline was assumed. These disposal rates were then multiplied by the actual employee numbers for those years to determine total waste disposed. The 1996 waste disposal rate was used for the years up to 2000. The Alberta government has made a commitment to not increase the size of the civil service so employee estimates for the years 1997 to 2000 are based on the 1996 number.

4.1.3 Transportation

Emissions from transportation occur through use of fleet vehicles, private vehicles, rented vehicles, government aircraft and commercial aircraft. Specific data on miles travelled was available for most fleet vehicles and for the government aircraft. Data on miles travelled was not available for private vehicle use, rented vehicles and commercial aircraft use so expense claims for travel were used.

Fleet vehicles include the executive fleet (used by the Minister and senior officials of each department), the central vehicle operations fleet (most vehicles used by staff while fulfilling their duties), and the "black and yellow" fleet (heavy vehicles used for such things as road maintenance). The number of vehicles in the executive fleet is available but not the kilometres travelled. The central vehicles fleet is by far the largest fleet. Since each vehicle reports the kilometres

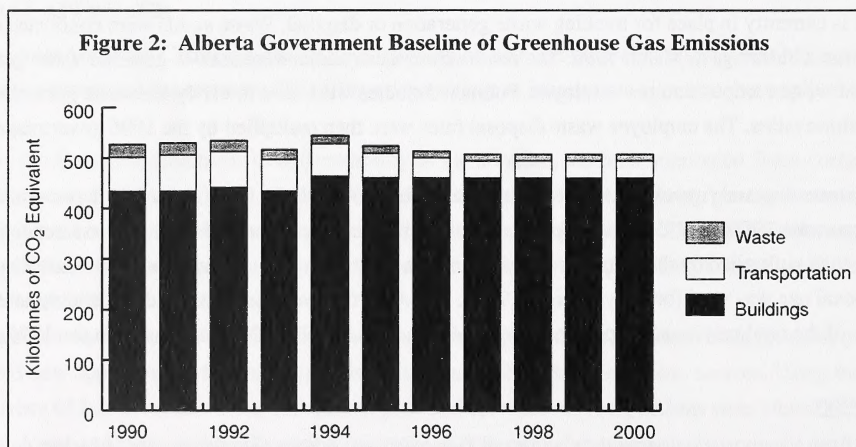
driven every six months, total kilometres were available for the 1990 to 1995 period. The total kilometres were divided by an average vehicle mileage for Alberta obtained from the Natural Resources Canada Energy Use Database to determine fuel usage. The yellow and black fleet also records kilometres and fuel used. This fleet is projected to decrease, through privatization, to 100 vehicles by 1997 from 1,916 in 1995.

Fuel consumed is recorded for each government aircraft. Figures were available for the 1990 to 1995 period. The 1995 figure was used as a base for the 1996 to 2000 period. Some aircraft are used for firefighting, therefore it is difficult to predict a future fuel consumption.

Expense claims are made for any travel by employees using private vehicles, rented vehicles and commercial aircraft. Total expenditures for each form of travel are available. Industry averages are available for the amount spent on fuel versus the total amount spent on each type of travel. An industry average of 18 per cent was used for vehicles, 14 per cent for air. The total dollars for air and vehicles were then multiplied by the appropriate percentage to get a total spent on fuel. An average cost for vehicle and air fuel was determined. This average cost was then divided into the total fuel dollars to determine the amount of fuel. Fuel use was then converted to greenhouse gas emissions.

4.2 Data

Figure 2 and Table 1 summarize the total tonnes of CO₂ equivalent for all Alberta government operations and for each emission source. Table 1 shows emissions have decreased slightly, from 526 kilotonnes in 1990 to 522 kilotonnes in 1995. Emissions are projected to decrease 3.6 per cent, from 526 in 1990 to 507 kilotonnes of CO₂ equivalent by the year 2000.



The largest emission source is energy use in buildings. Buildings represented 82.5 per cent of the 1990 total and is projected to increase to 90.7 per cent of total emissions in 2000, due to reduction in the other sources. Transportation is the second largest contributor but is declining and predicted to decline even further through privatization of the fleet. Some of these emissions will be transferred to the private sector. Transportation emissions will drop from 12.7 per cent of the total in 1990 to 6.5 per cent in 2000. Finally, waste declines from 4.9 per cent of emissions in 1990 to 2.8 per cent in 2000.

Table 1: Alberta Government Baseline of Greenhouse Gas Emissions Emission

Emission Source	Kilotonnes of CO ₂ Equivalent										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Buildings	434	434	441	434	463	460	460	460	460	460	460
Transportation	67	71	71	62	64	48	39	33	33	33	33
Waste	26	25	22	20	17	15	14	14	14	14	14
Totals	526	530	534	516	544	522	513	507	507	507	507

4.2.1 Buildings

Table 2 identifies the amount of greenhouse gas emissions by energy source. There are approximately 2500 buildings with a total area of 2.3 million square metres of space owned or leased by the government. Emissions from these buildings result directly from combustion of natural gas or indirectly through use of electricity. Electricity use is the largest portion of emissions, representing 67.5 per cent in 1995.

Table 2: Greenhouse Gas Emissions in Buildings

Year	Direct Emissions		Indirect Emissions		Total Tonnes of CO ₂
	Total GJ of Natural Gas	Tonnes of CO ₂	Total kWh of Electricity	Tonnes of CO ₂	
1990	2967272	147473	286137906	286138	433611
1991	2967272	147473	286137906	286138	433611
1992	3012631	149728	291577731	291578	441305
1993	2967272	147473	286137906	286138	433611
1994	3078071	152980	310241197	310241	463221
1995	3006065	149401	310204515	310205	459606
1996	3006065	149401	310204515	310205	459606
1997	3006065	149401	310204515	310205	459606
1998	3006065	149401	310204515	310205	459606
1999	3006065	149401	310204515	310205	459606
2000	3006065	149401	310204515	310205	459606

* Conversion factors — 49.7 kilotonnes CO₂/Petajoule and 1 kilotonne CO₂/GWh (blended electrical mix, Alberta 1994)

4.2.2 Waste

Table 3 shows the decline in both per capita waste disposal rate and number of government employees. From 1990 to 1994, there is a 18.3 per cent decline. By 2000, total waste is predicted to decline by 44 per cent from 1990 levels, in large part due to reductions in staff.

Table 3: Greenhouse Gas Emissions Related to Waste Management

Year	Waste Disposal Rate (kg/capita/yr)	Total Government Employees	Total Waste Disposal (tonnes)	Tonnes of CO ₂ Equivalent
1990	375	38210	14329	25777
1991	378	36367	13749	24735
1992	342	35298	12072	21718
1993	334	34144	11392	20494
1994	307	30263	9278	16691
1995	300	27836	8351	15023
1996	300	26805	8042	14467
1997	300	26805	8042	14467
1998	300	26805	8042	14467
1999	300	26805	8042	14467
2000	300	26805	8042	14467

* Greenhouse Gas Emission Factor for Landfills — 182 kg/t CO₂ and 66 kg/t CH₄ (1799 kg/t CO₂ Equivalent)

4.2.3 Transportation

Table 4 identifies the contribution of each section of the fleet to the total emissions. The Central Vehicle Services fleet, as represented by the light duty column, contributes the largest portion of emissions, representing 40.4 per cent in 1990 and 49.7 per cent in 2000. The black and yellow fleet, represented by the heavy duty column, shows a dramatic decrease resulting from the privatization of services. Its contribution drops from 28.6 per cent in 1990 to 1.8 per cent in 2000. Government aircraft show a decrease due to reductions in the fleet.

Table 4: Greenhouse Gas Emissions Related to Transportation

Year	Tonnes of CO ₂ Equivalent					Total
	Light Duty	Heavy Duty	Government Aircraft	Personal Vehicle	Private Aircraft	
1990	26967	19114	5797	7440	7440	66758
1991	32492	19114	5292	7192	7192	71282
1992	33347	19114	4692	6944	6944	71041
1993	25497	19114	3785	6696	6696	61788
1994	27725	19114	3886	6448	6448	63621
1995	16139	14864	4267	6200	6200	47670
1996	16139	7447	4000	6200	6200	39886
1997	16139	595	4000	6200	6200	33133
1998	16139	595	4000	6200	6200	33133
1999	16139	595	4000	6200	6200	33133
2000	16139	595	4000	6200	6200	33133

1. Greenhouse Gas Emission Factors — Motor Gasoline—2.36 t/kL CO₂, 2 kg/kL CH₄ and 0.71 kg/kL N₂O (Equivalent to 2.64 CO₂)

· Jet Fuel — 2.55 t/kL CO₂, 0.08 kg/kL CH₄, 0.23 kg/kL N₂O (Equivalent to 2.63 t/kL CO₂)

· Aviation Gas — 2.33 t/kL CO₂, 2.19 kg/kL CH₄, and 0.23 kg/kL N₂O (Equivalent to 2.46 t/kL CO₂)

2. Global Warming Potentials — CO₂—1, CH₄—24.5, N₂O—320

4.3 Baseline Summary

Alberta government greenhouse gas emissions have declined from the 1990 baseline level of 526 kilotonnes of CO₂ equivalent. They are projected to decline further to a level of 507 kilotonnes of CO₂ equivalent by 2000. This 3.6 per cent decrease is a result of a number of factors including: privatization of government; increased efficiency in the delivery of services; and continuing energy efficiency efforts. Some of the reduced emissions resulting from privatization will be transferred to the private sector. Some emissions will not be transferred as they are a result of increased efficiency or elimination of services.

The Alberta government emissions represent a small portion of the total Alberta emissions. In 1990 the CO₂ emissions for Alberta were 126,483 kilotonnes. Therefore, the Alberta government's emissions represent 0.42 per cent of the provincial total.

The sources of Alberta government emissions in 1990 are buildings (82.5 per cent), waste generation (4.9 per cent), and transportation (12.7 per cent). Each of these emission sources has declined since 1990 and is expected to decline further by 2000.

5. PERFORMANCE MEASURES

To measure the success of emission reduction actions taken, a series of performance indicators were chosen. These indicators were split into three levels, based on what was being measured. The three levels are: an overall indicator for the action plan, source specific indicators for each large emission source (buildings, waste and transportation), and program indicators for specific actions taken.

Overall Indicator

- percentage reduction of CO₂ equivalent emissions in Alberta government internal operations

Source Specific Indicators

1. Buildings
 - percentage reduction of CO₂ equivalent emissions
 - energy consumed per square metre per year
 2. Waste
 - percentage reduction of CO₂ equivalent emissions
 - waste disposal per employee per year
 3. Transportation
 - percentage reduction of CO₂ equivalent emissions
 - total amount spent on travel per year
-

The overall indicator for the action plan will be the percentage of CO₂ equivalent of reduced emissions from Alberta government internal operations. Percentage of reduced emissions was chosen over actual tonnes of reduced emissions because it is a better measure of the extent of progress and is easier for staff and the general public to understand.

Two indicators have been chosen for each major emission source. For buildings, the indicators are percentage reduction of CO₂ equivalent emissions and energy consumed per square meter per year. For waste, the indicators are percentage reduction of CO₂ equivalent emissions and waste disposal per employee per year. For transportation, the

indicators are percentage reduction of CO₂ equivalent emissions and total amount spent on travel per employee per year. The percentage reduction figures for each source will be added to calculate the overall action plan indicator. The breakdown by source will demonstrate which area is contributing most to reducing emissions. The second indicators were chosen to help eliminate counting reductions which may result from downsizing. Downsizing of employees will probably result in less building space required, less waste generated and reduced travel. Those services which are privatized will result in a transfer of at least part of the emissions from government operations to the private sector.

Some program indicators were developed for specific initiatives. These indicators include: number of building energy audits completed, total value of building energy performance contracts and capital projects directed at retrofits, percentage of waste paper recycled, percentage of buildings with recycling programs for paper, cans, and bottles, total kilometres driven using government vehicles, and number of employees receiving information pamphlets. Initiatives will be continually developed and revised. Indicators will be developed for each of these new initiatives.

6. TARGETS

Figure 3 and Table 5 show the target emission reductions. Emissions will be 14.1 per cent less in 2000 than in 1990. Emissions are targeted to be 452 kilotonnes of CO₂ equivalent in 2000. This represents a reduction of CO₂ equivalent emissions of 74 kilotonnes between 1990 and 2000.

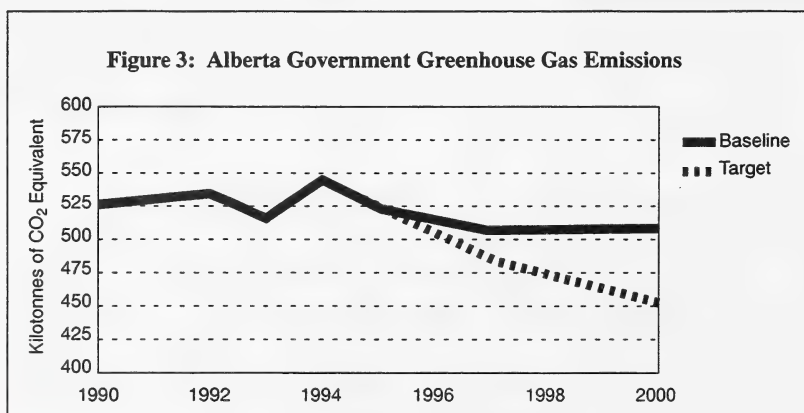


Table 5: Alberta Government Target for Greenhouse Gas Emissions

Emission Source	Kilotonnes of CO ₂ Equivalent										
	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Buildings	434	434	441	434	463	460	450	441	432	423	414
Transportation	67	71	71	62	64	48	39	32	31	30	29
Waste	26	25	22	20	17	15	13	12	11	10	9
Totals	526	530	534	516	544	522	503	485	474	463	452

* Columns may not add up due to rounding.

Targets have been established for each of the three emission sources. Based on these targets, an overall reduction target was set for the action plan. Targets were set by evaluating the cost-effective opportunities and assessing the results from our own and other organizations' actions. Meeting the overall target will not only reduce greenhouse gas emissions but will also save money.

6.1 Buildings

Table 6 shows the target for reducing emissions from energy use for buildings, 10 per cent from 1995 levels by the year 2000. This will be achieved by: auditing the 100 largest buildings and following up with cost-effective actions, taking cost-effective actions in smaller buildings by including them in energy performance contracts, and making other capital and maintenance improvements. These actions will be implemented using the energy performance contracting approach (energy service companies finance the retrofits and receive payment through energy bill savings) or through quick payback retrofit projects. In addition, departments and their staff will be encouraged through education, presentations, workshops, newsletters, and other means, to practice responsible and practical methods of reducing energy consumption.

Table 6: Target Greenhouse Gas Emissions in Buildings

Year	Direct Emissions		Indirect Emissions		Total Tonnes of CO ₂
	Total GJ of Natural Gas	Tonnes of CO ₂	Total kWh of Electricity	Tonnes of CO ₂	
1990	2967272	147473	286137906	286138	433611
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1994	3078071	152980	310241197	310241	463221
1995	3006065	149401	310204515	310205	459606
1996	2978310	148022	302392000	302392	450414
1997	2950563	146643	294578000	294578	441221
1998	2922837	145265	286765000	286765	432030
1999	2895091	143886	278952000	278952	422838
2000	2867344	142507	271138000	271138	413645

*Conversion factors — 49.7 kilotonnes CO₂/Petajoule and 1 kilotonne CO₂/GWh (blended electrical mix, Alberta 1994)

The target for buildings will be achieved by reducing energy use from larger buildings by 18 per cent and making smaller improvements in other buildings. Based on experience from previous energy audits and implementation of follow-up measures, these savings should be achievable. The large buildings represent about 50 per cent of the total floor area for government owned and operated buildings. If 18 per cent reductions are achieved from 50 per cent of the floor area, then this represents a 9 per cent overall reduction. In addition, a 1 per cent reduction is expected for smaller maintenance improvements in the other buildings. Achieving this target will result in a reduction of 39.1 million kilowatt hours of electricity and 138,721 gigajoules of natural gas between 1995 and the year 2000. Greenhouse gas emissions will be reduced by 46 kilotonnes of CO₂ equivalent.

6.2 Waste

Table 7 shows the target for reducing emissions from waste materials, 50 per cent of 1990 levels by the year 2000. The Canadian Council of Ministers of the Environment set a nationwide goal of a 50 per cent reduction by the year 2000, in the per person weight of solid waste sent for disposal, based on 1988 disposal rates. Since the amount of waste has already decreased 20 per cent from 1990 to 1995, a further 30 per cent is targeted over the next five years. Paper products are the largest portion of the waste stream. An education program will target paper recycling, use of recycled paper, and reduced use of paper (moving towards the electronic office). A "Greenhouse Gas Emission Reduction Guide" (see Appendix 1) has been prepared and department teams are being formed to deliver the education component. By achieving the target, the government will decrease the amount of waste by 18.8 kilograms per person per year resulting in a total reduction of 9316 tonnes between 1990 and 2000. The resulting reduction in emissions will be 16.8 kilotonnes of CO₂ equivalent.

Table 7: Target Greenhouse Gas Emissions Related to Waste Management

Year	Waste Disposal Rate (kg/capita/yr)	Total Government Employees	Total Waste Disposed (tonnes)	Tonnes of CO ₂ Equivalent
1990	375	38210	14329	25777
1991	378	36367	13749	24735
1992	342	35298	12072	21718
1993	334	34144	11392	20494
1994	307	30263	9278	16691
1995	300	27836	8351	15023
1996	277	26805	7425	13358
1997	255	26805	6835	12297
1998	232	26805	6219	11188
1999	210	26805	5629	10127
2000	187	26805	5013	9018

1. Greenhouse Gas Emission Factor for Landfills — 182 kg/t CO₂ and 66 kg/t CH₄ (1799 kg/t CO₂ Equivalent)

2. Global Warming Potentials — CO₂–1, CH₄–24.5, N₂O–320

6.3 Transportation

Table 8 shows the target for reducing emissions from transportation, by 10 per cent below the projected baseline level for 2000. This represents a decrease of 3.2 kilotonnes of CO₂ equivalent. Transportation emissions come from a number of sources including government vehicles, private vehicles used for government business, government aircraft, and various forms of travel to meetings, such as private aircraft, buses, and rented vehicles. The baseline numbers are continuing to be refined so further reductions may be identified. The primary implementation method will be education through the "Greenhouse Gas Emission Reduction Guide." The guide includes tips for staff, tips for managers, and a memo and questionnaire for transportation coordinators.

Table 8: Target Greenhouse Gas Emissions Related to Transportation

Year	Tonnes of CO ₂ Equivalent					
	Light Duty	Heavy Duty	Government Aircraft	Personal Vehicle	Private Aircraft	Total
1990	26967	19114	5797	7440	7440	66758
1991	32492	19114	5292	7192	7192	71282
1992	33347	19114	4692	6944	6944	71041
1993	25497	19114	3785	6696	6696	61788
1994	27725	19114	3886	6448	6448	63621
1995	16139	14864	4267	6200	6200	47670
1996	15816	7447	4000	5978	5978	39219
1997	15493	595	4000	5755	5755	31598
1998	15171	575	4000	5533	5533	30792
1999	14848	556	4000	5310	5310	30024
2000	14525	536	4000	5088	5088	29237

1. Greenhouse Gas Emissions Factors

- Motor Gasoline — 2.36 t/kL CO₂, 2 kg/kL CH₄ and 0.71 N₂O (Equivalent to 2.64 CO₂)
- Jet Fuel — 2.55 t/kL CO₂, 0.08 kg/kL CH₄, and 0.23 kg/kL N₂O (Equivalent to 2.63 t/kL CO₂)
- Aviation Gas — 2.33 t/kL CO₂, 2.19 kg/kL CH₄, and 0.23 kg/kL N₂O (Equivalent to 2.46 t/kL CO₂)

2. Global Warming Potentials — CO₂–1, CH₄–24.5, N₂O–320

6.4 Overall

The overall target will be 14.1 per cent less emissions in 2000 than in 1990; 10.5 per cent will be a result of actions taken under the Climate Change Action Plan to reduce greenhouse gas emissions. Emissions are targeted to be 452 kilotonnes of CO₂ equivalent in 2000. This represents a reduction of CO₂ equivalent emissions of 74 kilotonnes between 1990 and 2000.

7. FIRST YEAR ACCOMPLISHMENTS

In the normal course of business, the Alberta government has taken many actions that work directly or indirectly to reduce emissions of greenhouse gases. The benefits accrue to both government operations and externally to Albertans, as they react to government policies and programs. In the “Action Plan for Canada’s Climate Change Voluntary Challenge and Registry Program” submitted by the Alberta government in October 1995, the Appendix lists programs and policies that reduce greenhouse gas emissions throughout the province. These programs and policies continue to save greenhouse gas emissions.

7.1 Ongoing Actions

Examples of the continuing actions to reduce greenhouse gases include:

- Support of small power through the Small Power Research and Development Program. In 1988, the Government of Alberta introduced the Small Power Research and Development Program to help determine the future role of renewable small power in Alberta. Eighteen projects totalling 108 MW were approved and all have signed power sale contracts. The program has six small hydro projects, three biomass/waste energy projects, and nine wind pro-

jects. Sixteen projects are currently running. The remaining two projects are in the stages of obtaining permits and financing. It is estimated that the total production of electricity from SPR&D projects will be 581 GWh per year when all projects are commissioned. In 1995, 397 GWh of electricity was generated under this program. Assuming all power produced will offset an equal amount of fossil generation, this program represents a potential offset of approximately 0.32 MT of CO₂. Over the next 20 years of the program, a total offset of 4.0 MT of CO₂ may be possible.

- Decreased energy use through improved practices in tractor ballasting, tire hop and tire setup. By following simple and inexpensive recommendations, tractor operators can raise performance by up to 10 per cent in terms of increased drawbar horsepower and reduced fuel consumption, repairs and maintenance costs. Work in all three areas has been done cooperatively with major manufacturers.
- Reduced fuel consumption through fleet vehicle management. Fuel consumption and right-sizing (matching the size of the vehicle and its engine to its task) have been included as evaluation criteria when government vehicles are purchased. One department has evaluated alternate fuels. Fifteen light-duty trucks and one heavy-duty truck were converted to compressed natural gas. The performance, emissions and operating costs were monitored and evaluated. Recycling and reuse are also part of fleet management practices. For example, tires from large trucks have been recapped and retreaded, air filters for large equipment have been recycled, and re-refined engine and hydraulic oils have been used.
- Waste has been reduced through practices such as furniture recycling and surplus sales of government materials. A comprehensive furniture recycling program makes furniture from one department available to other departments before it is declared surplus. All government surplus material is sold for reuse in the private sector.
- Increased awareness of the issues through development of the school curriculum. The topics of greenhouse gases and global warming are addressed in the curriculum for the compulsory courses of social studies (Grade 11) and in the new secondary science programs (Grades 7–12). The topic is also addressed in optional courses such as environmental and outdoor education (Grades 7–12) and in natural resource studies (career and technology studies, Grades 8–12).
- Carbon sequestration through programs to encourage planting trees. These programs include: *Shelter Belts (Farm)* — Trees and shrubs are sold to farmers to protect and beautify their farmsteads; *Arbour Day* — Seedlings of Colorado spruce, white spruce and lodgepole pine are given to schools for planting by children in Grades 1, 2 and 3; *Forever-A-Tree* — Forever-a-tree is a hands-on experience for children in Grades 5 and 6. They learn about forest conservation, trees and how to plant and care for young trees in their own school yard; and *Tree Distribution* — Trees are supplied to various groups including Fish and Wildlife, Junior Forest Wardens, 4-H, Provincial Parks, and for demonstration purposes. Since 1990, over 1.5 million trees have been distributed.

7.2 New Initiatives

New actions have been taken as a result of the action plan. These actions have been directed at reducing greenhouse gas emissions in internal government operations. These actions are:

- Energy and waste management programs were implemented in Petroleum Plaza and Oxbridge Place, two large office buildings in Edmonton. These buildings were used as pilots for identifying how programs could be implemented in large government buildings. Extensive energy, waste and water audits identified potential savings. Committees were established to take actions. Since the buildings were leased, the owners were asked to implement actions in their buildings. Specific measures undertaken include converting lighting to 34-watt energy saver tubes, replacing 16-watt lighting ballasts with 6-watt ballasts, replace 50-watt incandescent exit lights with 11-watt fluo-

rescent fixtures, removing approximately 100 lighting fixtures from each floor, replacing large mechanical motors with energy efficient motors, and disconnecting an electrically heated building entrance walkway. These actions resulted in savings of \$ 124,000 per year and a greenhouse gas reduction of 1967 tons of CO₂ per year. Staff received education on greenhouse gas reductions through articles in newsletters, E-mail, displays and personal contact. Information gathered at these two buildings was used in developing actions for other government buildings.

- An energy retrofit was implemented at the Alberta Vocational College in Edmonton through an energy performance contract. The \$500,666 contract will produce \$82,499 in savings per year for a payback of 6 years. Estimated emission reductions are 1,248 tonnes of CO₂ equivalent per year.
- Nine buildings have been audited in the Lethbridge area and a performance contract was tendered on those buildings. The total amount of the contract is \$477,951 and is estimated to produce a savings of \$87,455 per year for a payback of 5.5 years. This project is estimated to save 1,323 tonnes of CO₂ equivalent per year.
- Twenty six buildings have been audited in the northwest region of the province. Follow-up actions will be undertaken through an energy performance contract.
- A building management and control system was installed in a building in Devon. In addition, the lighting was upgraded using T8 electronic ballasts and providing some fans with variable frequency drives. The total cost of the project was \$263,696 and the annual savings are estimated to be \$154,668 for a payback of 1.7 years. The annual estimated emission reductions are 2,922 tonnes of CO₂ equivalent.
- The Government Centre cogeneration power plant was converted from a high pressure to a low pressure steam system. In addition, the plant stopped producing electricity. Although the energy savings were not large, substantial money was saved through reduction in staff.
- A building lighting retrofit was completed in the Peace River provincial building. The lighting changes included use of T8 electronic ballasts with reflectors and reduction in the number of fixtures. As a bonus, an undersized chiller did not have to be replaced. The \$92,000 cost for the project is expected to produce \$26,725 savings per year for a payback of 3.4 years. The emission reductions are expected to be 334 tonnes of CO₂ equivalent per year.
- Waste audits were conducted on 14 representative government buildings to develop baseline information. A final report was completed in May 1996. Results of this study showed that the average Alberta government employee disposes about 300 kilograms of waste per year. This waste stream is composed mainly of paper (56 per cent), and organic waste (29.5 per cent), mainly from cafeterias. Smaller amounts come from metals (2.2 per cent), plastic (1.4 per cent), beverage containers and glass (0.9 per cent), and other (9.6 per cent). Most buildings already have paper recycling and many have recycling of cans and bottles.
- A "Greenhouse Gas Emission Reduction Guide" was produced as an information and education tool. Each department representative will receive this package of instructions and ready-to-use articles, memos, and questionnaires. These representatives will then use staff teams to deliver the message through personal contact. The guide includes ready-to-use articles for department newsletters, memos to specific individuals (e.g., transportation coordinators), and questionnaires to build a base of information and identify results from actions taken.
- A recognition program was developed to support the efforts of staff. A policy has been established to determine who receives recognition. Department representatives and team members will forward recommendations to the communications task group. Coffee mugs and lunch bags made of recycled materials have been produced to be given to recognized staff. They also serve as a vehicle for communicating the voluntary challenge. In addition, certificates in a frame made of recycled leather will be awarded on annually to staff taking significant actions to reduce greenhouse gas emissions.

7.3 Research Activities

The Alberta government pulled together a consortium consisting of Environment Canada, Edmonton Power, Mobil Oil, Petro-Canada, and Canadian Liquid Air to undertake a “proof-of-concept” R&D project on a closed-cycle approach to CO₂ disposal from natural gas-fired power plants. The Alberta Research Council is the main contractor of this \$106,000 study. In this close-cycle process, a portion of the waste CO₂ produced by natural gas combustion at the generating station would be injected into a deep subsurface coal seam containing methane (main component of natural gas). Injected CO₂ is used as a “push-gas” to drive the coal-bed methane towards a recovery well. Recovered methane is then used as fuel for the generating station and the CO₂ remains captured in the deep subsurface coal seam. Conceptually, the process could lead to “near zero” greenhouse gas emissions from a fossil fuel-fired electrical generating station. If this first phase shows promise, a more detailed Phase 2 will be undertaken next year.

The Alberta government has established a coordinating committee to bring together producers and consumers of carbon dioxide to establish research needs necessary for the development of enabling technologies for the capture and utilization or disposal of carbon dioxide. The possible areas of utilization/disposition of carbon dioxide include enhanced oil recovery; coal-bed methane recovery; process changes such as new combustion technologies and co-transport medium in pipelines; and biofixation. Champions have been identified for each area and project teams are being organized.

8. RESULTS

As outlined in our action plan submission to the Voluntary Challenge and Registry, the focus of the first year was to establish an organization to deliver on the plan, develop a baseline, choose indicators, set targets, and take cost-effective actions building on existing programs (primarily in buildings). These goals have been accomplished.

The Implementation Team, with representatives from all departments, reporting to a deputy minister level committee shows the government commitment to this plan. The department teams give us the manpower to personally deliver the information and education component of the plan to Alberta government staff. The time spent on establishing this solid organization will help ensure a positive result in delivering greenhouse gas emission reductions.

With a baseline, indicators, and targets in place, emission reducing actions can now be tracked and assessed. Energy savings in buildings will be tracked through the Energy Consumption Recording System, which includes energy use from all government owned and operated buildings. Reductions in waste materials will be tracked through a combination of follow up waste audits, questionnaires to purchasers of materials, and, potentially, through reports from contractors who collect recycled and waste materials from government buildings. Transportation emission reductions will be tracked through questionnaires to department transportation coordinators, through the government’s central vehicle service’s database, and through expenditures made on travel.

Specific results from the actions taken in the first year are not yet available. The building retrofits require data for at least a one-year period to determine energy savings and subsequent emission reductions. Quantified results will be available in the 1997 progress report.

9. WORKPLAN FOR 1996–97

The Alberta government’s Action Plan is dynamic. It will be updated regularly as new cost-effective actions are identified. Current commitments to action include:

- An aggressive program to audit the largest government buildings and follow up with cost-effective retrofits. Energy performance contracts will primarily be used to deliver the retrofits, although some will be accomplished through capital and maintenance budgets.

- Building managers will continue to use the Energy Consumption Recording System to compare their consumption with other buildings and take actions if warranted.
- Implementation of audit results in the following facilities: Lethbridge group, Northwest region group, and Neil Crawford Centre group.
- Completion of an upgrade of Alberta Research Council Millwoods building management control system.
- Owners of leased facilities will be approached to take actions where cost-effective. As an incentive, the government will agree to pay the current energy bill for an agreed-upon time, if the owner takes cost-effective actions to reduce greenhouse gas emissions. Any savings the building owner makes can be used to pay for an energy performance contract.
- Using the “Greenhouse Gas Emissions Reduction Guide,” department staff will be educated on how they can take personal action to reduce greenhouse gas emissions. These actions include reducing energy use in their offices, while travelling to meetings, and through their positions. This will include personal contact through department teams.
- Champions will be identified and workshops conducted to encourage implementation of waste reducing actions in buildings.
- Information about current practices for environmentally responsible procurement will be consolidated and distributed to purchasers within departments.
- A number of areas are currently being assessed by task groups to determine appropriate actions. These areas include:
 - Explore economic and practical implications of alternative operational methods, or program delivery, taking into consideration climate change as a criteria. Review experiences to date with:
 - videoconferencing as an alternative to travelling to meetings,
 - purchasing environmentally friendly office products, and
 - research and development projects and policy recommendations.
- Pursue implementation and continuation or expansion of practices where positive results have been shown.
- Review alternative power options.
- Explore opportunities for including energy efficiency criteria in government parking policy.
- Discuss the possibility of developing an electronic bulletin board to maximize efficient use of government aircraft.
- Consider emissions testing of government fleet vehicles.
- Compile information on working at home and explore opportunities for developing guidelines for government employees.

10. CONCLUSION

The Alberta government is taking leadership by reducing its own greenhouse gas emissions. A progressive plan has been established building on initial commitment, moving through development of a baseline, performance measures and targets, taking cost-effective actions, monitoring and assessing those actions, reporting on those actions, and taking further actions.

A target 14.1 per cent reduction from 1990 levels by the year 2000 has been established. Greenhouse gas emissions will be reduced by 74 kilotonnes CO₂ equivalent over this period. Actions have already been taken to meet this target. For example, energy performance contracts are being used to increase the energy efficiency of buildings owned and operated by the government.

The Action Plan has commitment from senior management. An Implementation Team, with representation from all departments of governments, is providing overall coordination and direction for the program; ensuring integration of plans, actions and communication efforts. This team reports to a deputy minister level committee. Departmental teams are being used to inform and educate staff on how they can contribute to reducing their own emissions. In summary, considerable progress has been made. Greenhouse gas emissions are going down and ambitious targets have been set. A cross-government team is implementing the Action Plan with support from senior executives. A baseline has been established and performance measures chosen. Actions have been taken and results will be monitored, assessed and reported on in future progress reports.

APPENDIX

GREENHOUSE GAS EMISSION REDUCTION GUIDE

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STEP BY STEP PROCEDURE

This guide contains information for staff, managers, and executive members on how to reduce greenhouse gas emissions from Alberta government operations and contribute to the Alberta Government Action Plan on Climate Change.

Background

In October 1995 the Alberta government registered an Action Plan with the national Voluntary Challenge (VCR) program. It was the first action plan submitted to the VCR by a government in Canada, and it commits the province to reducing greenhouse gas emissions from its own operations.

The VCR program was established by the federal and provincial governments. It invites Canadian organizations to express their intention to participate in the program and develop action plans to limit or reduce their net greenhouse gas emissions. The national registry records the plans of participating organizations, their progress reports and the reductions they achieve.

The Alberta government's three-year Action Plan focuses on the three major sources of carbon dioxide:

- energy used in buildings
- waste
- operation of fleet vehicles.

Alberta has set up an Implementation Team with representation from all departments to identify, assess, implement, monitor, evaluate and report on actions to reduce greenhouse gas emissions due to government operations.

Performance measures and targets have been established for each source of emissions, and an annual progress report will be submitted by October to the national registry.

Implementation steps for department representatives

1. If not already done, inform department executives about the work plan (See Appendix 1 and 2) and how it will affect department staff.
2. Recruit members of a department team to carry out the work plan. Members could be people who are interested in the environment and have the enthusiasm to get staff involved or they could be people who are in a position to make changes in department activities affecting the three target areas. Try to include someone from the department's Communications Branch
3. Review this guide with the department team. Make sure everyone understands the issues and the actions to be taken under the work plan and can handle questions. Call on a member of the Implementation Team or the appropriate key contact (names and numbers attached) for help if anyone does not understand an issue or an action.
4. Work with your department team to set priorities for work plan action. Decide which are appropriate for your department.
5. Encourage staff to reduce and recycle paper by making and posting signs in the appropriate areas of each office (use master copies from disc).
6. Promote general awareness by publishing the articles in the department newsletter or distributing them by E-mail (see 6a and b). Contact your department communications director or appropriate communications staff member to determine the best approach for your department.

- (a) **First stage:** publish one or more of the following articles in the order listed:
 - “*Alberta government committed to reducing greenhouse gases*” — describes the commitment, the action plan in general and asks for help
 - “*Voluntary Challenge and Registry Program*” — describes the program, why it was developed, and current participation
 - “*Climate Change — Sources and Effects*” — describes what climate change is, why it occurs, and potential effects
 - “*Our Contribution to Greenhouse Gas Emissions*” — describes our contribution to emissions based on data collected from Alberta government operations
 - “*The Greenhouse Gas Challenge and You*” — describes why staff should get involved and asks for their help
- (b) **Second stage:** after staff are more aware of the issues and why they are important, distribute the following articles and memos that describe how managers and staff can take action.
 - E-Mail or mail directly to managers:
 - “*Reducing Greenhouse Gas Emissions in the Workplace: Top Ten List*” — focuses on getting support of managers for appropriate actions
 - Publish in newsletter or E-mail to all staff the following articles directed at our three largest emission sources (buildings, waste, and transportation):
 - “*Energy Efficiency in the Workplace: Top Ten List*” — focuses on actions to reduce building energy use
 - “*Waste Reduction in the Workplace: Top Ten List*” — focuses on actions to reduce waste produced in the office
 - “*Waste Management and You*” — describes results from waste audits completed on 14 representative Alberta government buildings
 - “*Reducing Transportation Energy Use in the Workplace: Top Ten List*” — focuses on energy used by government vehicles and traveling to meetings
7. Send or give Branch Heads the following:
 - Memo — *To: Branch Head*
 - The attached questionnaire about office practices. Review completed questionnaires to identify actions which could be taken. Meet with your department team and determine how to implement the appropriate actions. If you require assistance on taking actions, take your requirements to an Implementation Team meeting. Send the questionnaire to Goldie Edworthy, Department of Energy (see contact list for address) for use in the annual progress report.
8. Send or give your department’s transportation coordinator the following:
 - Memo — *To: Transportation Coordinators*
 - The attached questionnaire about transportation policies and practices. Review completed questionnaire to identify actions which could be taken. Meet with the transportation coordinator to determine if other appropriate actions could be taken. If you require assistance on taking actions, take your requirements to an Implementation Team meeting. Send the questionnaire to Goldie Edworthy, Department of Energy (see contact list for address) for use in the annual progress report
9. Work with your department team to encourage actions by staff in their area using the tips from the articles listed in 6b.

10. To maintain interest in the program, periodically E-mail, place in the newsletter or post specific articles that will be forwarded to departmental representatives during the next three years.
11. Each year in April, send the appropriate questionnaires covering the previous fiscal year to branch heads and transportation coordinators. Review the questionnaires as a team to identify further actions required and take appropriate actions. If you require assistance on taking actions, take your requirements to an Implementation Team meeting. Send the questionnaires to Goldie Edworthy, Department of Energy (see contact list for address). The questionnaires will be used to analyze the actions taken as a result of the program.

ALBERTA GOVERNMENT VOLUNTARY CHALLENGE ACTION PLAN IMPLEMENTATION TEAM

Members	Department	Phone	Fax	E-mail
Jack McKendry	AFSS	427-4506	422-0236	mckenjac@censsw.gov.ab.ca
Rob Hanson	Health	422-1441	427-5597	hansor@mail.health.gov.ab.ca
Terry Eliuk	Treasury	427-9935	422-2163	eliukt@treas.gov.ab.ca
Bob Rippon	AEP	422-2112	427-1594	bripton@env.gov.ab.ca
Rod Thompson	AT&U	427-7944	422-1070	thompr@censsw.gov.ab.ca
Terry Zdan	AEP	427-2326	422-9684	terry.zdan@env.gov.ab.ca
John Pejs	Agriculture	427-2151	422-6529	pejs@agric.gov.ab.ca
Roy Clough	PAO	420-4439	422-0285	apclour@pao.gov.ab.ca
Milli Murray	AECD	427-5702	422-5126	murraym@aecd.gov.ab.ca
Heather Fox	Education	427-2051	427-2147	hfox@edc.gov.ab.ca
Gina Zsombor	AEP	427-8636	422-6339	gzsombor@env.gov.ab.ca
Casey Skakun	APWSS	422-7458	422-7479	casey.skakun@gov.ab.ca
Howard Brinton	Justice	427-5011	427-6821	brintonh@mgate.just.gov.ab.ca
Ron Todoruk	Muni Affairs	427-4878	422-9105	todorrr2@censsw.gov.ab.ca
Chinwe Okelu	FIGA	427-6553	427-0939	cok@inter.gov.ab.ca
Donna Chaffee	ED&T	422-0184	422-1759	chaffdon@censsw.gov.ab.ca
Allan Sheppard	Energy	427-8697	422-0800	sheppaa@enr.gov.ab.ca
Mark Rasmussen	Comm. Devel.	431-2306	432-1376	no E-mail address
Shirley Nelson	Aboriginal Affairs	422-4062	427-4019	abatts@compusmart.ab.ca Carol.gabara. Attn. S.N.
Chris Tye	Labour	427-8265	422-7205	tye@lab.gov.ab.ca
Goldie Edworthy (Chair)	ADOE	427-5200	427-2278	edwortg@enr.gov.ab.ca

PROMPTS

Department teams: create these signs and place them in the appropriate locations.

1. On all waste baskets:

NO RECYCLABLE PAPER OR RECYCLABLE PRODUCTS

2. On all paper recycling trays and bins.

RECYCLABLE PAPER MATERIALS

- white and coloured bond
- all types of envelopes
- NCR paper
- blueprints
- file folders
- newspapers and magazines
- photocopy paper wrappers
- paperback and hardcover books
- sticky notes
- thermal fax paper (staples and paper clips can be included)

3. On all photocopiers:

DOUBLE-SIDE DOCUMENTS WHERE POSSIBLE

4. On all photocopiers, printers and fax machines:

USE RECYCLED PAPER

5. On all computers:

USE E-MAIL AND TURN OFF COMPUTER WHEN NOT IN USE

6. In all boardrooms and other rooms with a separate switch:

PLEASE TURN OFF LIGHTS WHEN NOT IN USE

THE ALBERTA GOVERNMENT IS COMMITTED TO REDUCING GREENHOUSE GAS EMISSIONS

Background

In October 1995 the Alberta government registered an action plan with the national Voluntary Challenge and Registry (VCR) program and became the first government in Canada to make a formal commitment to reduce greenhouse gas emissions from its own operations.

The VCR program was established by the federal and provincial governments. It invites Canadian organizations to express their intention to participate in a global initiative to reduce greenhouse gas emissions by developing action plans to limit or reduce net emissions from their own operations. The program includes a national registry to record plans, annual progress reports and reductions achieved.

Objectives

The Alberta Government Action Plan has seven objectives:

- to implement a government-wide program for reducing greenhouse gas emissions in government operations
- to demonstrate the advantages of a voluntary approach
- to take effective actions that save money
- to profit from doing business in new ways
- to show how others can take cost-effective action to reduce emissions
- to share what we learn
- to measure and report on cost-effective quantifiable actions.

Process

An Implementation Team with representation from all departments has been set up to identify, assess, implement, monitor, evaluate and report on actions to reduce greenhouse gas.

The Alberta government's three-year Action Plan focuses on reducing the three major sources of carbon dioxide, the major greenhouse gas:

- energy used in buildings
- waste
- operation of fleet vehicles.

Performance measures and targets will be established for each source. An annual progress report will be submitted to the national registry.

The Action Plan is already in effect. Public Works Supply and Services is doing energy audits on government buildings and following up with cost-effective strategies including retrofits, renovations, installation of new equipment and changes in procedures to improve efficiency and reduce energy consumption and waste. Energy performance contracts are used to implement the strategies: energy service companies agree to finance and carry out the improvements in return for some or all of the savings in utilities costs over the contract period.

You can help

All staff have an impact on the amount of greenhouse gas emissions from government operations. Office equipment, like your computer or the photocopier; using government vehicles or traveling on government business; using and throwing paper and supplies all create greenhouse gas emissions directly or indirectly. We can all increase our own efficiency and reduce waste in these areas.

You can take actions in your workplace to reduce greenhouse gas emissions. Computers, for example, use energy. Simply turning a computer off when it is not in use makes a difference. So does buying energy-efficient computers. And we can all make similar changes in habits and purchasing policies in other areas.

We can also challenge our clients, families and friends to take similar action by sharing knowledge and experience. It's a way to help the environment and save money at the same time.

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____ at _____.

VOLUNTARY CHALLENGE AND REGISTRY PROGRAM

In 1992, Canada signed the Framework Convention on Climate Change at an international conference in Rio de Janeiro. Under the convention, Canada and other countries agreed to work towards stabilizing greenhouse gas emissions at 1990 levels by the year 2000.

Later, the federal and provincial governments established a National Action Program on Climate Change. It outlines federal-provincial strategy for achieving the convention goal and provides guidance for action beyond 2000.

The Voluntary Challenge and Registry (VCR) is a key element of the national action program. The VCR invites Canadian organizations to express their intention to participate and develop action plans to limit or reduce net greenhouse gas emissions from their own operations. A national registry will record plans, annual progress reports and the reductions achieved.

The VCR is primarily directed at activities that reduce or limit emissions of greenhouse gases and/or protect and enhance greenhouse gas reservoirs and “sinks” (such as trees and other objects or features that remove carbon dioxide from the air) in an environmentally responsible fashion. The program also includes actions that address climate change through other means, such as: education, training or research and development — all of which would lead to emission reductions.

At the joint federal-provincial Energy and Environment Ministers meeting in November 1995, federal Natural Resources Minister Anne McLellan tabled the first progress report on the Voluntary Challenge and Registry. Over 475 companies and organizations, representing a majority of greenhouse gas emissions in Canada, had committed to participate in the program.

Sectoral distribution of participants is significant. Coverage by registered companies from oil and gas sectors ranges from 80 to 100 per cent of total emissions. In the electrical sector, 25 utilities are registered, including 10 utilities representing more than 95 per cent of emissions from that sector. Coverage in other sectors ranges from 95 per cent in manufacturing to 50 per cent in pulp and paper. Progress in the VCR program will be reviewed in November 1996.

The Alberta government registered an action plan in October 1995. Alberta was the first government in Canada to register a plan.

For more information, call Goldie Edworthy at the Department of Energy, 427-5200.

CLIMATE CHANGE — SOURCES AND POTENTIAL EFFECTS

There is growing international concern that rising concentrations of greenhouse gases in the atmosphere may increase the risk of major climate change. Countries around the world agreed on the need to stabilize global concentrations of greenhouse gas emissions below dangerous levels. In 1992 industrialized countries meeting in Rio de Janeiro, Brazil adopted the initial aim of reducing greenhouse gas emissions to 1990 levels by the year 2000.

The most significant greenhouse gases are carbon dioxide (CO₂), methane (CH₄), chlorofluorocarbons (CFCs), nitrous oxide (N₂O) and ground level ozone (O₃).

There are many sources of greenhouse gases including those manufactured and released due to human activity (e.g. the burning of fossil fuels). Some greenhouse gases, such as chlorofluorocarbons (CFCs), are entirely manufactured. Others, such as carbon dioxide, include only a small percentage that comes from human activity.

While greenhouse gases that are the result of human activity are a small percentage of the overall total, the volumes of manufactured greenhouse gases are increasing, and they are changing the balance of gases in the atmosphere. There is considerable debate among the world's scientists about the potential effects of this change. While there is no agreement on the amount and location of climate change, it is estimated the average global surface temperature could increase one to five degrees Celsius, and that there could be substantial change in precipitation patterns.

According to some models, northern latitudes (including Canada) would be affected more than equatorial regions; however, the effects of higher temperatures, accompanied by rising sea levels and changes in precipitation would be global. Food production could be affected by coastal flooding and by more frequent and severe droughts. Fresh water supplies, forests and land use could also be affected. Weather could become more extreme. In low-lying coastal areas, rising sea levels caused by a combination of melting glaciers and polar ice and the expansion of the oceans as they warm, could require major diking projects to prevent flooding, or relocation of populations.

For more information, call Goldie Edworthy at the Department of Energy, 427-5200.

OUR CONTRIBUTION TO GREENHOUSE GAS EMISSIONS

Think globally, act locally. These words remind us that we can only change things through personal actions. And when it comes to global climate change, we need to understand what impact we have and what actions we can take to make a difference.

In 1990 greenhouse gas emissions in Canada were equivalent to 21.7 tonnes of carbon dioxide per person. Three-quarters of this amount originated from the industrial, commercial, agricultural and service sectors of our economy divided equally among all Canadians. The remainder was personal emissions, equivalent to about 5.47 tonnes of carbon dioxide per person, per year.

Where do these personal emissions come from? The largest portion is carbon dioxide that results from energy use at home and on the road. A smaller portion comes from garbage which ends up in landfills where it decomposes to produce methane. The actual breakdown of emissions is 45% from use of a vehicle, 33% from space heating, 9% from using appliances and lights, 7% from water heating, and 6% from waste disposal.

What about our contribution as employees of the Alberta government? The Alberta government has made a commitment under the national Voluntary Challenge and Registry program to reduce greenhouse gas emissions from its own operations. This program was set up by the federal and provincial governments as part of Canada's commitment under an international convention to reduce greenhouse gas emissions. A baseline of emissions due to government operations has been compiled to help us take actions that make sense and monitor results.

In 1995, Alberta government operations resulted in 522 kilotonnes of greenhouse gases. Most of these emissions (460 kilotonnes, 88 per cent of the total) came from energy use in the 2,500 buildings owned or operated by the government of Alberta. The rest came from transportation (48 kilotonnes, 9 per cent) and waste (15 kilotonnes, 3 per cent).

The Alberta government had 27,836 employees in 1995, and the individual greenhouse gas contribution was 18.8 kilotonnes of carbon dioxide equivalent in that year. If you combine the Alberta government and personal emissions the total is 24.3 kilotonnes of carbon dioxide, and this doesn't include each person's share of the other common emissions. An Alberta government employee's impact is greater than the average Canadian.

Through the Alberta Government Action Plan on Climate Change, you and your colleagues can help reduce our emissions. In addition, take similar actions at home. It could save you money.

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____ at _____.

THE GREENHOUSE GAS CHALLENGE AND YOU

Most people are aware of and concerned about environmental issues such as global warming. You can turn that concern into action. As a result of Canada's international commitment to reducing greenhouse gases, the federal and provincial governments have launched a Voluntary Challenge and Registry (VCR) program. The VCR program encourages private and public organizations to make and register formal commitments to reduce greenhouse gases in their own operations.

The Alberta government developed an Action Plan and registered it in October 1995. Since then a Implementation Team that includes representatives from various government departments has been working on the plan. For example, Public Works Supply and Services has been doing energy audits on government buildings and following up with cost-effective modifications.

We need your help to reduce greenhouse gases in our government operations. The three main areas for action are reducing use of energy in buildings, reducing transportation-related fuel use, and reducing waste. We have an impact on the amount of greenhouse gases that come from government operations. Using office equipment such as your computer or the photocopier, driving a government owned vehicle, and throwing out paper and other everyday activities at work create greenhouse gas emissions.

You can do things in your workplace to reduce greenhouse gas emissions. Turn your computer off when it isn't in use, buy recycled products and energy efficient type equipment, challenge your clients to take similar actions these are simple things we can all do that will make a difference.

And remember, similar actions can be taken at home to help the environment and save you money at the same time.

How else can you participate? Become part of a departmental team that works with staff to take actions. Your ideas and involvement can help reduce greenhouse gas emissions.

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____ at _____.

REDUCING GREENHOUSE GAS EMISSIONS IN THE WORKPLACE: TOP TEN LIST

The Alberta government has made a formal commitment to reduce the amount of greenhouse gases emitted in its own internal operations. An Implementation Team, with representatives from most departments, is starting to work on the action plan. The actions to be taken focus on three areas; energy use in buildings, transportation, and waste management.

We need your help to get results. As a manager, you are in a position to influence the amount of greenhouse gases we generate from the three sources. Your influence varies from making travel and purchasing decisions, through encouraging practices within the office, to setting an example for your employees to follow.

In order to help us all take actions which make sense and monitor results, the Implementation Team has compiled a baseline of the government's emissions. In 1995, the total greenhouse gas emissions from Alberta government operations were 522 kilotonnes. Since there were 27,836 employees in 1995, the individual contribution was 18.8 tonnes of carbon dioxide equivalent in that year.

These emissions come from using computers, driving to meetings, throwing out paper and many other regular activities.

Waste audits of representative government buildings show that, on average, we throw away 300 kilograms of waste per employee, per year. This waste includes paper (56.4%), organic waste (29.5%), metals (2.2%), plastic (1.4%), beverage containers and glass (0.9%), and other materials (9.6%). The government has 3,312 light duty vehicles which traveled almost 58 million kilometres in 1995.

Here are the top ten actions you can take to reduce greenhouse gas emissions in your office. In addition, you may save money on your budget.

1. Set an example. Use electronic communication channels, such as E-mail and fax/modems. Edit documents on screen and double-side when you copy. Encourage your staff to move towards the paperless office.
2. Purchase office equipment on a life-cycle-costing basis. For example, consider a printer that has the capability to print on both sides. In most cases, any initial extra cost will be offset by lower expenditures for paper.
3. Purchase office products such as paper, envelopes, memo pads and pens that are recycled or easily recyclable. Look for the Ecologo stamp of approval.
4. Reuse office supplies such as binders, file folders, boxes, cerlox bindings, and report covers.
5. Consider whether travel is necessary. Schedule more than one meeting in the same area to reduce the number of trips.
6. Consider alternatives to travel. Teleconferencing or conference calls can often replace face to face meetings. They save both time and money.
7. If travel is necessary, make sure it is efficient. Car pool to meetings. Make sure vehicles are maintained properly and driven efficiently.
8. Encourage your staff to recycle all recyclable paper and return cans and bottles. If your office doesn't have facilities for recycling, get them.
9. Set an example by turning off computers, lights and other electrical devices when they are not in use.
10. Consider the effect of your program or policy on greenhouse gas emissions. Can changes be made to reduce any effect without reducing effectiveness?

Helping the environment is easy. You just need to get your office in the habit.

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____ at _____.

ENERGY EFFICIENCY IN THE OFFICE: TOP TEN LIST

The Alberta government has made a formal commitment to reduce the amount of greenhouse gases emitted in its own internal operations. An Implementation Team, with representatives from most departments, is starting to work on the action plan. The actions to be taken focus on three areas; energy use in buildings, transportation, and waste management.

Energy use in buildings contributes 88 per cent of the greenhouse gas emissions produced by the Alberta government internal operations. Alberta Public Works Supply and Services, which owns and operates the government's buildings, is taking steps to reduce energy use. PWSS is auditing buildings and following up with cost-effective modifications and retrofits. In some cases, the work is done by energy service companies through energy performance contracts. These companies pay for and complete the modifications and retrofits and get paid back over time through the energy savings.

For a building to truly run energy efficiently, the people who operate and work in the buildings need to participate. You can help reduce the amount of greenhouse gases we emit.

Here's our top-ten list of actions you can take responsibility in your area to help increase the energy efficiency of your building.

1. **Turn off your computer** when it isn't being used. Each computer consumes about 150 watts. A study of computers in an Alberta government building showed 25 per cent of the computers were left on for 24 hours a day, seven days a week. Contrary to popular opinion, frequently switching computer equipment on and off will not damage the components.
2. **Photocopy only what you need.** Photocopiers are by far the most energy intensive type of office machine.
3. **Reduce lighting.** Try using a desk lamp to focus light where you need it, on your desk.
4. **Turn off lights** when an area is unoccupied, if a separate switch is available. These areas include your office, meeting rooms, lunch room, and washroom.
5. **Conserve water.** Turn taps tightly so they don't drip. Report any leaks around plumbing fixtures to building maintenance staff.
6. **Use appliances appropriately.** Many offices have small appliances such as kettles, coffee makers, and heaters. Where possible, consider using a communal appliance on each floor. Using larger appliances are generally more efficient than running a number of small appliances.
7. **Learn how to operate office equipment properly** to save energy and paper.
8. **Take the stairs** instead of the elevator.
9. **Keep your office more comfortable** by opening curtains in winter and closing them in the summer.
10. **Encourage decision-makers** to purchase energy efficient office equipment, lights and appliances.

Helping the environment is easy. You just need to get in the habit.

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____, at _____.

WASTE REDUCTION IN THE OFFICE: TOP TEN LIST

A waste audit of representative government buildings showed that, on average, we throw away 300 kilograms of waste per employee, per year. This waste, which includes materials being recycled, was made up 56.4% paper, 29.5% organic waste, 2.2% metals, 1.4% plastic, 0.9% beverage containers and glass, and 9.6% other.

Paper product recycling rates averaged only 32 per cent, which means that 68 per cent of the recyclable paper products are being thrown away. One of the key targets of the Alberta government greenhouse gas emission reduction plan will be to reduce the amount of waste paper we produce and significantly increase the amount of recycled paper.

The alternative approaches to sending these wastes to the landfill are the famous four R's — Reduce, Reuse, Recycle, and Recover. However, there is the fifth "R" we encourage you to practice: Responsibility. It is our responsibility to reduce the amount of waste we produce and to recycle where possible — to conserve resources and the environment.

Here's our top-ten list of actions you can take responsibility for to help reduce waste in your office.

1. **Use electronic mail** where possible and edit documents on screen. Let's move toward the paperless office.
 2. **Make only as many copies** as you need.
 3. **Double-side documents** where possible.
 4. **Circulate memos and documents** rather than make copies or post memos in central traffic areas.
 5. **Reuse the blank side** of used paper as scrap paper.
 6. **Have a garbage-less lunch.** Use plastic containers and cloth bags. If you buy your lunch, or just a coffee, use a plastic container or your mug.
 7. **Recycle waste paper.** The types of paper that can go into a mixed paper recycling bin include the following: white and coloured bond, all types of envelopes, NCR (No Carbon Required) paper, blueprints and file folders, newspapers and magazines, photocopy paper wrappings, paperback and hardcover books, sticky notes and thermal fax paper (staples and paper clips can be included).
 8. **Reuse office supplies** such as binders, file folders, boxes, cerlox bindings, and report covers.
 9. **Use personal mugs** for coffee and provide additional mugs for visitors.
 10. **Recycle refundable cans and bottles** and use the money for a social club or donate it to a charity.
- Helping the environment is easy. You just need to get in the habit.

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____, at _____.

WASTE MANAGEMENT AND YOU

Did you know that the average Alberta government employee disposes of about 300 kilograms of “waste” per year? Is it really waste or could it be recycled? As part of the Alberta government’s commitment to reducing greenhouse gases in its own operations, waste audits were conducted on 14 typical government office buildings to see what wastes were being produced and how they could be reduced.

Paper products still represent the largest portion of waste in Alberta government offices, despite the large amount of paper we already recycle and the coming of the age of computers, which was supposed to lead to the paperless office. Paper represented 56% of the total or about 170 kilograms per employee per year. The types of paper were office paper (19.4%), newspapers (2.9%), cardboard (4.3%), and other paper (29.8%). The average recycling rate for paper was 32%, which means we have the opportunity to triple our recycling rate.

Organic waste, mainly from cafeterias but also lunches and wood waste, represented 29.5% of the waste. The rest came from metals (2.2%), plastic (1.4%), beverage containers and glass (0.9%), and other (9.6%).

There was a large variation in each waste category between buildings. Most, but not all buildings, have paper recycling. Many floors recycle cans and bottles and put the money into a social fund or a donate to charity.

How can we reduce these wastes? Reducing paper is the most promising area:

First, we should reduce the amount of paper used before it goes in the waste stream or the recycling bin. Always consider whether you need to print or copy a document (is an electronic copy adequate?) or whether that printout or copy can be double-sided. If we develop environmentally friendly habits, reducing paper can be easy.

Second, we can increase the amount of paper we recycle. Most paper products can be recycled if you have a mixed paper recycling program. The types of paper that can go into a mixed paper recycling bin include the following: white and coloured bond, all types of envelopes, NCR (No Carbon Required) paper, blueprints and file folders, newspapers and magazines, photocopy paper wrappings, paperback and hardcover books, sticky notes and thermal fax paper (staples and paper clips can be included).

Reducing other types of waste can also be easy. Gather cans and bottles in a centralized location on your floor and take turns taking them to the recycling station. Use a cloth or nylon bag for your lunch instead of paper bags. Use a plastic container when you pick up lunch at your favourite cafeteria. You sometimes get a better deal than when they use their containers. Composting of organic waste is more difficult. We will look into the feasibility of transporting organic waste off-site.

If you have a good idea for reducing waste call your Alberta Government Action Plan on Climate Change departmental representative, _____, at _____.

And remember, opportunities to reduce and recycle “waste” don’t just occur at work. You can use these habits and ideas at home, too.

REDUCING TRANSPORTATION ENERGY USE IN THE WORKPLACE: TOP TEN LIST

The Alberta government has made a formal commitment to reduce the amount of greenhouse gases emitted in its own internal operations. An Implementation Team, with representatives from most departments, is starting to work on the action plan. The actions to be taken focus on three areas; energy use in buildings, transportation, and waste management.

The Alberta government creates greenhouse gas emissions from a number of transportation activities: driving government-owned vehicles, driving personal vehicles on government business, renting vehicles, flying in government owned aircraft, and flying with commercial airlines.

The government owns 3,312 light duty vehicles which traveled about 58 million kilometres in 1995. There were another 1,916 heavy-duty vehicles which traveled over 5.6 million kilometres. (Most will be privatized over the next two years.) In addition, travel by government employees to meetings by private vehicle, rented vehicle, plane or other modes creates a large amount of greenhouse gas emissions.

Here's the top ten actions you can take responsibility for increasing efficiency in the use of transportation in your office.

1. **Consider an alternative to travel.** Does the meeting require face-to-face contact? Can a conference call or tele-conference be used? Travel requires both money and a great deal of time.
2. **Reduce the amount of travel** by combining several meetings into one trip.
3. **Start a car pool** and encourage others to do the same. Travel to meetings by car pool.
4. **Drive in an energy-efficient manner** in your own or the government's vehicle. Driving 90 km/h rather than 100 km/h can reduce fuel consumption by 10 per cent. Avoid excessive idling. Your vehicle only needs 30 seconds to warm up, even in cold weather.
5. **Maintain the vehicle** you are driving. A poorly tuned engine can increase fuel consumption by 15 to more than 50 per cent. Under inflated tires can increase fuel consumption by 5 per cent.
6. **Take the transit**, ride your bike, or walk.
7. **Ask your employer** about flextime.
8. **Fly with a government plane** when available. Check the schedule: it may already be flying to your destination.
9. **Use the fax or E-mail** instead of couriers.
10. **When renting, choose a vehicle** which is no bigger than is required for your purpose.
Helping the environment is easy. You just need to get in the habit.

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____, at _____.

MEMO

To: Branch Head

From: (insert department representative's name)

Subject: Alberta Government Action Plan on Climate Change

Date: December 5, 1996

In October 1995, the Alberta government registered an action plan with the national Voluntary Challenge Program committing to reduce greenhouse gas emissions from its own operations. The Voluntary Challenge and Registry Program invites Canadian organizations to express their intention to participate and develop action plans to limit or reduce net greenhouse gas emissions. A registry, established by the federal and provincial governments, will record the plans, progress reports and the reductions achieved. The Alberta Action Plan was the first registered by a government in Canada.

An Implementation Team, with representation from most departments, is helping identify, assess, implement, monitor, evaluate and report on activity and progress under the Alberta Action Plan. The three-year Action Plan focuses on reducing the three major sources of carbon dioxide: energy used in buildings, waste, and operation of fleet vehicles. Performance measures and targets will be established for each source. An annual progress report will be submitted to the National Voluntary Challenge and Registry.

The Implementation Team needs your help to reduce greenhouse gases in our government operations. As a Branch Head, you can have a direct impact on the amount of greenhouse gases we emit. Many offices are already contributing by taking some of the following actions.

Your input will be used to establish an inventory of greenhouse gas emissions in your department and, in future, to help assess and evaluate results of your actions. Your department team will review completed questionnaires to compile information about your department and actions that can be taken by individual staff and work units. The department representative will report to the Implementation Team on the information collected through the questionnaires and the actions to be taken. The Implementation Team will assess and report on progress on the Alberta government action plan.

Please fill out the attached questionnaire and send it to (department representative's name) and consider taking any of the following actions you have not already implemented:

1. **Purchase recycled paper.**
2. **Reuse office supplies**, such as binders, file folders, boxes, cerlox bindings, and report covers, before buying new supplies.
3. **Purchase reusable office supplies** instead of disposable office supplies (e.g., refillable pens).
4. **Order in bulk** where possible (eliminates extra packaging) and purchase lasting and durable goods.
5. **Investigate** using re-manufactured photocopier and printer toner cartridges.
6. **Use energy-efficient photocopiers.** Photocopiers are by far the most energy-intensive type of office machine. Consider purchasing or renting a photocopier with built-in duplexing capability which will make it easier for staff to make double-sided copies. Look for a photocopier with an energy-saver feature that reduces its energy use in the idling mode by at least 50 per cent.

7. **Purchase or rent a printer that can print on both sides of the paper.** Look for a printer with an energy-saver feature that reduces its energy use when idle by at least 50 per cent.
8. **Compare the energy use when purchasing a fax-laser machine** (some faxes use 50 per cent more energy) and look for a standby mode that offers low energy consumption, and preferably an energy-saver feature.
9. **Look at energy use when purchasing computers.** In a typical office, computers far outweigh all other office equipment in terms of energy consumption because there are so many of them. Look at energy efficient desktop computers with 3.3-volt or combination 3.3/5.0-volt components (including monitor, advanced/integrated power management features, an LCD rather than a CRT monitor, and, when feasible, a monochrome rather than a colour monitor. If appropriate, buy laptops. They use 10 per cent or less of the power required by current desktop units.
10. **Purchase coffee mugs** for visitors to the office rather than using throwaway cups.
11. **Track the purchases** in your workplace, especially paper, and use the information as an indicator of your success in reducing waste.

Please consider taking these actions and help us meet our greenhouse gas commitment. Many of these actions will not only help reduce greenhouse gas emissions but will also save money in your budget (if not immediately, then in the longer term).

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____, at _____.

BRANCH HEAD QUESTIONNAIRE

In October 1995, the Alberta government registered an action plan with the national Voluntary Challenge Program committing to reduce greenhouse gas emissions from its own operations. The Voluntary Challenge and Registry Program invites Canadian organizations to express their intention to participate and develop action plans to limit or reduce net greenhouse gas emissions. A registry, established by the federal and provincial governments, will record the plans, progress reports and the reductions achieved. The Alberta Action Plan was the first registered by a government in Canada.

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The Implementation Team needs your help to reduce greenhouse gases in our government operations. As a Branch Head, you can have a direct impact on the amount of greenhouse gases we emit. The use of energy to produce office supplies and operate office equipment contributes to greenhouse gas emissions. Reductions have been made by implementing some of the following actions. We would like you to fill out the attached questionnaire and send it to (**department representative's name**). We also ask you to consider taking any of the following actions you have not already implemented:

Date: _____ Number of Employees in Branch: _____
 Branch: _____
 Contact Person (completed questionnaire): _____
 Telephone: _____ Fax: _____

- | | | |
|---|------------------------------|-----------------------------|
| 1. Do you purchase office equipment using energy efficiency criteria? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 2. Have you purchased energy efficient office equipment in the last year? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, which of the following? | | |
| a. Energy Star Computers | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, what percentage of your inventory has the feature? | | _____ % |
| b. Printers with double-sided printing capability | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, what percentage of your inventory has the feature? | | _____ % |
| c. Photocopier with automatic double sided copying? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, what percentage of your inventory has the feature? | | _____ % |
| d. Fax with reduced consumption in standby mode | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, what percentage do they represent? | | _____ % |
| e. Other | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| Specify: _____ | | |
| 3. Do you use a printer that has the capability to print on both sides of the paper? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 4. Do you use a fax laser machine which has a standby mode with low energy consumption and an energy-saver feature? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |

5. Do you use desktop computers which are energy efficient
(3.3-volt or combination 3.3/5.0-volt components)? YES ☐ NO ☐
6. Do you use coffee mugs for visitors to the office rather than using throwaway cups? YES ☐ NO ☐
7. Do you recycle photocopier and printer tone cartridges? YES ☐ NO ☐
8. Do you use a photocopier with built-in double siding capability? YES ☐ NO ☐
9. Do you encourage employees to turn off computers when not in use or after hours? YES ☐ NO ☐
If yes, what percentage of employees take these actions? _____%
10. Do you purchase recycled paper? YES ☐ NO ☐
If yes, what percentage of total volume does this represent? _____%
11. Do you track paper purchases in your office? YES ☐ NO ☐
12. Do you purchase reusable office products instead of disposable office
supplies (e.g., refillable pens)? YES ☐ NO ☐
Specify: _____
13. Do you reuse office supplies such as binders, file folders, boxes,
cerlox bindings and report covers? YES ☐ NO ☐
Specify: _____
14. Do you order in bulk and purchase lasting and durable goods? YES ☐ NO ☐
15. Do you use electronic communications? YES ☐ NO ☐
If yes, which of the following:
 - (a) E-mail YES ☐ NO ☐
If yes, what percentage of employees have this capability? _____%
 - (b) Computer faxing YES ☐ NO ☐
If yes, what percentage of employees have this capability? _____%
 - (c) Other YES ☐ NO ☐
Specify: _____
16. Do you use alternatives to face-to-face meetings? YES ☐ NO ☐
If yes, which of the following:
 - (a) Teleconferencing YES ☐ NO ☐
 - (b) Conference calls YES ☐ NO ☐
 - (c) Other YES ☐ NO ☐
Specify: _____
17. Which of the following efficient travel options do you use?
 - (a) Car pooling to meetings YES ☐ NO ☐
If yes, what percentage of the time? _____%
 - (b) Scheduling meetings to reduce trips? YES ☐ NO ☐
If yes, what percentage of the time? _____%
 - (c) Other YES ☐ NO ☐
Specify: _____

18. Which of the following have you incorporated when using government fleet vehicles?

(a) Regular vehicle maintenance?

YES ☐

NO ☐

(b) Energy efficient driving habits (courses, information)?

YES ☐

NO ☐

(c) Right sizing (using proper vehicle for job required)?

YES ☐

NO ☐

(d) Other

YES ☐

NO ☐

Specify: _____

19. What other greenhouse gas reducing efforts have you taken? _____

20. Please add any other suggestions or comments you have for reducing greenhouse gasses in your area. _____

Please return questionnaire to _____ by October 15, 1996.

MEMO

To: Transportation Coordinator

From: (insert department representative's name)

Subject: Alberta Government Action Plan on Climate Change

Date: December 5, 1996

In October 1995, the Alberta government registered an action plan with the national Voluntary Challenge Program committing to reduce greenhouse gas emissions from its own operations. The Voluntary Challenge and Registry Program invites Canadian organizations to express their intention to participate and develop action plans to limit or reduce net greenhouse gas emissions. A registry, established by the federal and provincial governments, will record the plans, progress reports and the reductions achieved. The Alberta Action Plan was the first registered by a government in Canada.

An Implementation Team, with representation from most departments, is helping identify, assess, implement, monitor, evaluate and report on activity and progress under the Alberta Action Plan. The three year Action Plan focuses on reducing the three major sources of carbon dioxide: energy used in buildings, waste, and operation of fleet vehicles. Performance measures and targets will be established for each source. An annual progress report will be submitted to the National Voluntary Challenge and Registry.

The Implementation Team needs your help to reduce greenhouse gases in our government operations. As the department transportation coordinator you can have a direct impact on the amount of greenhouse gases we emit. Our vehicles contribute to greenhouse gas emissions. Reductions have been made by implementing some of the following actions. We would like you to fill out the attached questionnaire and send it to (**department representative's name**). We also ask you to consider taking any of the following actions you have not already implemented:

1. **Use the Alberta Transportation and Utilities guidelines** when purchasing new vehicles. They use Transport Canada's Fuel Consumption Guide as the average minimum fuel consumption standard for light vehicles.
2. **Base choices on operational requirements** when purchasing, leasing or renting a vehicle. This practice, called "right sizing," involves matching the vehicle to the job.
3. **Follow a preventive maintenance program** to maintain vehicle performance and fuel efficiency. A poorly maintained vehicle typically consumes up to 15% more fuel. Extend the preventive maintenance check to include emissions testing. Emissions testing is available in Edmonton and Calgary through specific service stations.
4. **Encourage the use of premium, multi-grade oil.** It can improve a vehicle's fuel economy by up to 6% by reducing engine friction.
5. **Keep tires properly inflated.** Check the tires' pressure every month. Improper tire inflation can waste up to 5% on gas.
6. **Encourage fleet drivers to take driver training courses.** Pro-Trucker is a course offered to professional truck drivers. A defensive driving course for other drivers would be beneficial as defensive driving techniques are synonymous with efficient driving techniques.
7. **Consider alternative fuel vehicles** when purchasing new vehicles.

8. **Provide transportation efficiency literature** to drivers of fleet vehicles. Tips include the effect of reducing speed. Most vehicles burn about 20% more fuel if driven at 110 km/h instead of 90 km/h.
9. **Provide fuel economy calculators** in each fleet vehicle to track fuel usage. Increased usage could indicate the need for a tune-up.
10. **Encourage department staff to use car pools** to travel to meetings and combine meetings to reduce the number of trips.

Please consider taking these actions and help us meet our greenhouse gas commitment. Many of these actions will not only help reduce greenhouse gas emissions but will also save money in your budget (if not immediately, then in the longer term).

For information on other environmentally friendly actions you can take call your Alberta Government Action Plan on Climate Change departmental representative, _____, at _____.

TRANSPORTATION COORDINATOR QUESTIONNAIRE

Background

In October 1995, the Alberta government registered an action plan with the national Voluntary Challenge Program committing to reduce greenhouse gas emissions from its own operations. The Voluntary Challenge and Registry Program invites Canadian organizations to express their intention to participate and develop action plans to limit or reduce net greenhouse gas emissions. A registry, established by the federal and provincial governments, will record the plans, progress reports and the reductions achieved. The Alberta Action Plan was the first registered by a government in Canada.

An Implementation Team, with representation from most departments, is helping identify, assess, implement, monitor, evaluate and report on activity and progress under the Alberta Action Plan. The three year Action Plan focuses on reducing the three major sources of carbon dioxide: energy used in buildings, waste, and operation of fleet vehicles. Performance measures and targets will be established for each source. An annual progress report will be submitted to the National Voluntary Challenge and Registry.

Process

This questionnaire will be used to establish an inventory of greenhouse gas emissions in your department and record results of your actions. The Implementation Team will compile the information from all departments to assess the results of the actions taken. The information will also be used to identify further actions.

Date: _____ Number of Vehicles in Department: _____

Branch: _____

Contact Person (completed questionnaire): _____

Telephone: _____ Fax: _____

- | | | |
|---|------------------------------|-----------------------------|
| 1. Are recycled products used? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| What products are recycled? _____ | | |
| 2. Is driver training for conserving fuel available to drivers of department vehicles? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, what training is available? _____ | | |
| 3. Does your department have energy efficiency criteria for purchasing vehicles? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, what criteria are used? _____ | | |
| 4. Does the department occasionally use teleconferencing instead of attending meetings? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 5. Do you have your own teleconferencing facility? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 6. Do department parking policies include energy efficiency criteria? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| If yes, what criteria are used? _____ | | |
| 7. Is there a bicycle compound to which staff have access? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |
| 8. Is there any attempt to car pool in your department? | YES <input type="checkbox"/> | NO <input type="checkbox"/> |

9. How often are vehicles maintained?

Every _____ kilometres? or Every _____ months?

10. Does your department have alternative fueled vehicles?

YES ☐

NO ☐

If yes, what percentage of your vehicles? _____ %

Are they: propane ☐ natural gas ☐ methane ☐

11. What other greenhouse gas reducing efforts have you taken? _____

12. Please add any suggestions or comments you have for reducing greenhouse gases in your areas. _____

Please return questionnaire to _____ by October 15, 1996.

KEY CONTACTS

Program Coordination	Goldie Edworthy	427-5200 (Tel)
	Department of Energy 5 th Floor, North Petroleum Plaza 9945 – 108 Street Edmonton, AB T5K 2G6	427-2278 (Fax)
Communication	Allan Sheppard	427-8697 (Tel)
	Department of Energy 5 th Floor, North Petroleum Plaza 9945 – 108 Street Edmonton, AB T5K 2G6	422-0800 (Fax)
	Gina Zsombor	427-5536 (Tel)
	Environmental Protection 9 th Floor, South Petroleum Plaza 9915 – 108 Street Edmonton, AB T5K 2G8	422-6339 (Fax)
Buildings	Casey Skakun	422-7458 (Tel)
	Public Works Supply & Services 3 rd Floor, PWSS Building 6950 – 113 Street Edmonton, AB T6H 5V7	422-7479 (Fax)
	John Gibson	422-0106 (Tel)
	Public Works Supply & Services 3 rd Floor, PWSS Building 6950 – 113 Street Edmonton, AB T6H 5V7	422-7479 (Fax)
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